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Acupuncture in Pain Management: A Pathway to Interdisciplinary Collaboration in Oregon

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Conditions related to pain are a reported medical problem for over 50 million Americans each year.¹ Research shows that pain management costs the economy more than \$600 billion annually in physician visits, analgesics, and loss of productivity.² There has been increasing emphasis on nonpharmacologic pain management methods. Mixed modality, multidisciplinary pain management has been shown to improve patient outcomes and reduce adverse events.³ This brief paper is a non-exhaustive summary of the history, mechanisms of action, and efficacy of acupuncture. The purpose is to open greater channels of communication between acupuncturists, physicians, and other medical providers for the purposes of improving patient outcomes and ensuring greater medical safety for all Oregonians.

This year marks the 50th anniversary of acupuncture being a licensed medical practice in the state of Oregon. During that time, research has shown multiple mechanisms of action, efficacy, safety, and appropriate dosing for numerous pain conditions. While acupuncture as a medical specialty is represented by professionals who are board-certified following the completion of a four-to-six-year medical degree program, the educational model and professional communication have been slow to utilize modern physiologic language.

It is important to understand that as a subset of Chinese/Traditional East Asian medicine, acupuncture is representative of an organizational system. As such, acupuncture follows a continuous literary history spanning 3,000 years. An important note: while this organizational system is functional, it is also communicated in a 3,000-year-old linguistic model. Fortunately, the last 50 years of research have helped to modernize our understanding of acupuncture in physiologic terms.

It has been shown that acupuncture stimulates multiple physiologic mechanisms. These mechanisms include anti-inflammatory actions, antioxidant effects, autonomic vagus nerve regulation; increased endogenous opioids; action on cannabinoid CB2 receptors; neuromodulation

via neurotransmitter actions; neuroendocrine actions; HPA axis regulation; neuroimmune regulation via mast cell activation; neuroplastic brain changes visible on fMRI; neural growth and regeneration/apoptosis reduction; whole-brain impacts via the default mode network, microbiome changes which affect mood and pain perception; microcirculatory changes; nociceptive/analgesic, pain-relieving actions. These mechanisms are generally recognized under three categories: connective tissue, biochemical, and neurological.

Connective Tissue

Acupuncture has been shown to make an impact on both short-term and long-term constituents of the surrounding cellular matrix in multiple ways.⁴ These changes result in matrix deformation and signal transduction. From there, various physiological events occur, including protein synthesis, changes in neurotransmitter levels, increase in mast cell density, and cellular migration. It has been shown that acupuncture treatments may result in the reduction of exercise induced fibrosis of skeletal muscle.^{5, 6}

Biochemical

It has been shown that acupuncture blocks pain by activating a variety of bioactive chemicals through peripheral, spinal, and supraspinal mechanisms. These include endogenous opioids,⁷ which desensitize peripheral nociceptors and reduce pro-inflammatory cytokines peripherally and in the spinal cord. Additionally, acupuncture has been shown to stimulate increases of endogenous opiate peptides, serotonin, oxytocin, endocannabinoids, and norepinephrine while modulating levels of dopamine, COX-2, prostaglandin E2, acetylcholine, adrenocorticotrophic hormone, and corticotropin releasing hormone.^{8, 9, 10}

Neurological

Neuroimaging studies have shown evidence of acupuncture mechanisms of action include significant modulatory effects at various levels throughout the central nervous system.^{11, 12}

Imaging studies have shown activation of multiple regions of the brain and corresponding deactivation of regions of the brain that are shown to relate to pain perception and stress.^{13, 14}

Conditions

Acupuncture is currently prescribed for chronic and acute pain. Early studies summarized in the 1998 NIH consensus report identified promising results for acupuncture for post-operative and chemotherapy-induced nausea and vomiting, postoperative dental pain, myofascial pain, carpal tunnel syndrome, tennis elbow, and menstrual cramps.¹⁵ Extensive meta-analyses have shown acupuncture is effective for chronic pain in conditions related to neck pain, back pain, low back pain, headaches, knee osteoarthritis, and shoulder pain with effects persisting over time.^{16, 17, 18}

Conclusion

The integration of pharmacologic medications, exercise therapies, and surgical interventions with mixed-modal, multidisciplinary interventions in pain management have been shown to improve patient outcomes and quality of life better than standard-of-care alone. Acupuncture has been shown to be a safe, effective integrative therapy with diverse physiologic mechanisms.

It is the purpose and mission of the OAA to ensure the safety of all Oregonians. Within this purpose it is our goal to improve communication among acupuncturists, physicians, and other medical providers. Providers, patients, and policy makers are always welcome to reach out to the OAA for more information about acupuncture from an evidence-based perspective.

About the Author

The Oregon Association of Acupuncturists (OAA) is the medical association representing board-certified acupuncturists and Chinese Medical Providers in Oregon. For more information go to oregonacupuncturists.com.

John Rybak is a board member, Strategic Director of Policy and Communications to the Legislative Committee, and past vice president of the OAA. He is also a faculty member at the Oregon College of Oriental Medicine, and the Medical Director of [The WellBridge Clinic](http://TheWellBridgeClinic.com) in Portland, Oregon. +

OMB News

In November, the 15th International Conference on Medical Regulation brought together more than 300 medical regulators from around the world who are members of the International Association of Medical Regulatory Authorities (IAMRA). Meeting attendees discussed many topics to advance efforts around health care workforce and regulation, including Artificial Intelligence (AI), racism in health care, migration of the medical workforce across borders, and health care provider wellness.

At this meeting, OMB Executive Director Nicole Krishnaswami, JD, was elected Chair-Elect of IAMRA, becoming the first representative of a U.S. medical board to lead IAMRA since the organization was founded in 1995. Since 2019, Ms. Krishnaswami has represented the North American region on IAMRA's board of directors, during which time she also chaired a committee to facilitate the exchange of disciplinary information among health regulators globally. In addition, the Oregon Medical Board and the Federation of State Medical Boards (FSMB) co-sponsored a resolution on the international recognition of Doctors of Osteopathic Medicine. The resolution was approved by the IAMRA members and is available to view [here](#).



Left to right: Christoffer Poulson, DO, Board Vice Chair; Nicole Krishnaswami, JD, OMB Executive Director; Erin Cramer, PA, Board Chair

Board staff recently attended the [40th Annual Oregon Rural Health Conference](#) in Sunriver. This conference brings together hundreds of providers, administrators, policy-makers, consumers, and public health experts to explore topics of vital importance to Oregonians living in rural communities. +

